Report of Practice

Digging Up: A Five-Year Journey to Instructional-Design Stability in a Postsecondary Distance Education Unit

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Abstract

This report of practice describes a five-year process to establish and implement quality standards for a substantial portfolio of distance-delivered courses at the Centre for Continuing and Distance Education, University of Saskatchewan. The report describes an analysis of the issues and the solutions found that led to our current curriculum design standards and procedures, the implementation of learning technologies, and the identification of issues and solutions regarding copyright law. Lastly, the future prospects of these distance-delivered postsecondary courses are considered. Focusing on the issues and solutions for each category of challenges, this report describes the five-year journey of a small instructional-design team that faced roadblocks and barriers common to many postsecondary continuing and distance education units.

Résumé

Ce rapport de pratique professionnelle décrit un processus quinquennal qui vise à établir et à mettre en place des normes de qualité pour un large éventail de cours de formation à distance au Centre for Continuing and Distance Education (centre de formation continue et à distance) de l'Université de la Saskatchewan. On y analyse les problèmes relevés et les solutions élaborées qui ont mené aux normes et aux procédures de conception du curriculum actuel, à la mise en œuvre de technologies pédagogiques et à l'identification de problèmes et de solutions concernant la loi sur les droits d'auteur. Enfin, on tient également compte des perspectives d'avenir de ces cours à distance de niveau post-secondaire. En mettant l'accent sur les problèmes et les solutions de chaque catégorie de défis, ce rapport décrit le cheminement en cinq ans d'une petite équipe de conception pédagogique qui a dû affronter des obstacles communs à plusieurs dans le domaine de la formation continue et de l'enseignement à distance au niveau postsecondaire.

Introduction

Pioneer instructional systems designers, such as Edward Thorndike, encouraged the standardization of curriculum development and instruction, in part, to make the process of educating more efficient (Wiburg, 2009). In fact, many would argue that the main goal of instructional design is to make learning more efficient, more effective, and less difficult (Morrison, Ross, Kalman, & Kemp, 2013). To accomplish this, many instructional designers are called upon to be agents of change at a much broader level of an organization's structure in order to effect change in the implementation of its mission (Schwier, Campbell, & Kenny, 2007). This was the case for our small instructional-design team who were tasked with the redevelopment and ongoing maintenance of an interdisciplinary portfolio of over a thousand distance-delivered credit courses and five complete adult and continuing education certificate programs.

Context

Continuing and Distance Education at the University of Saskatchewan Distance Learning, Off-Campus and Certificate Programs (DOC) is a work unit in the Centre for Continuing and Distance Education (CCDE) at the University of Saskatchewan. DOC delivers the majority of the 1,300 distance degree credit courses for the university. In addition to the credit courses, DOC has been responsible, both administratively and academically, for several certificate-level adult and continuing education programs. These classes are offered as independent studies (correspondence, print based), televised, and online classes throughout Saskatchewan, Canada, and internationally. In collaboration with the academic colleges, departments, and programs at the university, DOC analyzes, designs, and develops new curriculum as well as working with existing course curriculum. A small staff, including a visionary director, a dedicated curriculum team, and capable program assistants, support these efforts.

Although distance education at the University of Saskatchewan had employed instructional designers for development and maintenance of courses in the past, recent institutional reorganization meant that DOC had been without instructional designers for some time. We, the authors, were hired at the end of December 2008 to re-establish the role of instructional design in the distance-delivered courses offered through DOC, CCDE, and the University of Saskatchewan.

Fragmented Design Models and Processes

Issues

When we started in DOC in January 2009, analyzing the state of the instructional design was a priority task. In previous years, the focus had shifted from print-based development to online development, and the print-based course packages needed updating. Also, building flooding had damaged some of the cardboard storage boxes containing archived materials. Hard copy masters of course materials existed but there were no electronic backups, and these materials had to be sent to printing services each time printing was required.

Another issue was that in introductory modules to the courses there were no standardized templates, and students were given a broad range of information that had been updated over the years and had become inconsistent. This resulted in repetitive and often conflicting information about course instructions, evaluations, and due dates. The introductory module also confused curriculum with delivery processes. Students had to wade through up to 15 to 20 pages of this mixed information before reaching a description of the course, an explanation of performance expectations, and next steps.

Overall, the print and online course materials required work in three basic areas. First, course content was outdated, due to lack of ongoing curriculum maintenance. Second, copyright relating to figures and cited materials had been cleared, but the copyright records were often problematic. Third, over the years, various instructional designers had worked with subject matter experts to develop courses, but no standard design model had been used. Each instructional designer used his or her design model of choice.

As a result, the courses lacked a standard look and feel as both DOC and University of Saskatchewan courses. Given the use of the different design models, curriculum maintenance was very difficult and time consuming. Sometimes entire course packages had to be reviewed to find all of the articles, cited material, and visual elements for copyright processing. Readings were sometimes embedded in modules or delivered separately from the learning materials depending on the design model used during course development or in subsequent revisions. These diverse models of design had made many of the courses confusing to navigate.

Solutions

One of the first strategies was to design and develop a module template that standardized the components of the curriculum: overview, learning objectives, instructions, key terms and concepts, required readings, learning material, review questions and answers, discussion questions (for online classes), and references. When developing distance courses, subject matter experts work closely with an instructional designer and a template, which helps employ Gagne's nine events of instruction to ensure effective learning by

- building curriculum that captures learners' attention,
- informing learners of objectives,
- stimulating recall of prior learning,
- presenting new and well-organized content,
- providing learning guidance,
- eliciting performance,
- providing opportunities for feedback,
- assessing performance based on the objectives, and
- enhancing retention through repetition (Gagne, 1985).

The template is used for both print-based correspondence courses (called independent studies) and for online courses, and it allows us to identify content and gives us a structured skeleton to ensure the standard curriculum components are addressed. Additionally, it provides a simple navigable model for students to follow as they work through their learning materials.

A course syllabus template was developed to replace and standardize the information in the introductory module. This template provides a structure for all the non-curriculum content that previously existed in the introductory module and initiates the first communication between students and the course instructor (Thompson, 2007). Course syllabi were created for all courses, and these are reviewed and updated before each delivery. We can now track each piece of learning material clearly, and instructors can easily replace readings and other materials with more up-to-date content. The syllabus template is the one place where instructors communicate due dates and other delivery information that can be easily updated each term without disrupting the learning materials within the modules. The syllabus template also brought our courses into compliance with university policies around course syllabi and has now been adopted by the University Learning Centre as a campus-wide standard template.

The cardboard boxes holding the print-based course materials were replaced with waterproof plastic bins to preserve course guides as well as readings that had been prepared using an old-fashioned scissors-and-tape, cut-and-paste method. The readings have now been scanned so that there is a backup electronic copy of the materials.

Learning Technologies

Issues

During this same period, the learning management system (LMS)—Blackboard CE (BBCE)—was also upgraded to Blackboard Learn 9 (BB9). BBCE was essentially WebCT with Blackboard branding after Blackboard Inc. acquired WebCT in 2006. One of the hurdles we faced in bringing our online courses, as well as our televised and independent studies courses with online components, up to the newly adopted standard was incompatibility between course tools and materials. Newly supported technologies, changing file format standards, and the LMS migration led to the incompatibility between course materials and delivery systems. Although innovative for their time, many of the online developments predated the Web 2.0 "drag-and-drop" era and had been built using inconsistent standards and legacy systems such as WebCT, Blackboard Campus Edition (BBCE), SCORM (Sharable Content Object Reference Model), Adobe Flash, and HTML pages built in Dreamweaver.

Aside from the usual LMS migration issues that tend to occur, there were other significant issues. The text editor within the newly installed BB9 was far from perfect. Page formatting within the LMS became nearly impossible to predict, and much of our development time was now being spent getting style guides to translate into the BB9 editor. Also, Blackboard support for the legacy BBCE system was rapidly coming to an end, which led to mandatory migration of courses into the new LMS. These elements meant that a web developer was required to maintain and update many of the pages and files as courses were modified and changed. Another challenge arose with changing technology. CD-ROMs, DVDs, and even VHS copies of core content were often distributed with print packages; as operating systems evolved and VCRs began to collect dust, these materials reached fewer and fewer students.

Courses had often received Technology Enhanced Learning (TEL) development funding through the Saskatchewan Ministry of Advanced Education, Employment and Labour. This

funding had been made available to "extend access to education and skills training and enrich learning by adapting technology-based tools, teaching methods and resources to meet the diverse needs of learners, both on- and off-campus" (Higher Education in Saskatchewan, n.d.). These funds provided an opportunity to develop new solutions for distance learning. However, the model involved one-time payment based on a development activities proposal and did not include funding for continued maintenance or revisions. Therefore, many of the once-innovative enhancements to these courses were suffering from incompatibility and file format obsolescence. The technical skills to maintain these enhancements were often beyond the skill levels of most instructors or department support staff, and there was no additional funding to pay web developers to maintain them.

Solutions

Many interim solutions allowed us to continue delivering these classes within the new system. As with our entire journey, we focused both on the opportunities that the migration presented and on courses coming up in the next term. From a technology standpoint, the course materials were analyzed according to current format (HTML pages, PDFs, Blackboard items, and proprietary learning objects) and inventoried according to objects, formats, and issues. We adopted a pedagogical approach and took the opportunity to re-examine the appropriateness of the learning objectives with regard to the cognitive domains outlined in Bloom's taxonomy (Bloom, Engelhart, Furst, Hill, & Krathwohl, 1956). Taking an outcomes-based approach to design, we then looked at the assessments to ensure that materials were well-aligned and the objectives achievable. As Morrison et al. (2013) observe, "the broad purpose of evaluation is to determine to what extent the objectives of the instruction are being attained. The assessments used to inform the evaluation should therefore have a direct relationship with the objectives" (p. 258).

Using the module template we had developed, core text-based content was exported from an existing course and reformatted into the Word module template. These Word documents were often saved as simple PDFs and uploaded to a fresh blank course in BB9, where the table of contents was automatically generated. Compatible technology-based learning objects were used in the modules. Instead of being embedded into the written materials as they were before using Dreamweaver, they were now placed into the module as separate course material. Both the written content in PDF form and the technology-based objects appear in the module table of contents generated by the LMS.

Although PDFs were not the innovative solution we had hoped for when the LMS migration was announced, they did provide a compatible way to create a navigable and updatable course without the use of web-development services on campus. This move created master files of the course materials that were, for the most part, editable by anyone familiar with standard word processing. This meant that subject matter experts and instructors were now able to update course content using familiar tools, thus reducing in-house development time. When SCORM objects, CD-ROMs, and Adobe Flash objects were no longer compatible with the LMS, operating systems, or browsers, we sought out open educational resources (OERs) to replace them (Caswell, Henson, Jensen, & Wiley, 2008). The rationale for this was two-fold. First, as mentioned earlier, development funding for maintenance or redevelopment was no longer available, which created a financial barrier. Second, and more important, we recognized a need to move toward

a more open model, similar to OpenCourseWare (OCW) as described by Caswell et al. (2008). Many faculty in the Massachusetts Institute of Technology OCW project described OCW as "a helpful tool in revising/updating courses" (Caswell et al., 2008, p. 8). As an alternative, we redeveloped materials using compatible Web 2.0 technologies on the open web to which we could apply a Creative Commons licence.

Stripping old technology from course materials enabled us to introduce a standardized look and feel; simplify the copyright inventories; re-examine the alignment of objectives, curriculum, and assessments; and prepare materials in a way that provided compatibility and new innovations. Although there appeared to be less technical design than in previous versions, these courses were, in fact, more technologically advanced than their predecessors. They were no longer held back by outdated innovations, and the new technology facilitated new paradigms of online delivery that worked from a stable and pedagogically sound ground floor.

A new text editor that greatly improved the functionality of pagination, of page formatting, and of editing HTML pages within courses was released with the BB9 Service Pack 11 update. We were also now able to embed a modest list of Web 2.0 tools into the course pages with ease. This capacity meant that students were able to work through their materials without abrupt interruptions between readings and activities. They were able to read the written content (passive engagement) and work with the technology pieces (active engagement) on the same page without having to switch from one to the other.

Having stripped many courses of their old Dreamweaver HTML and SCORM compliant activities, we sought solutions to rebuild these PDF versions of courses into new and engaging designs. Fortunately, provincial and institutional infrastructures, as well as online tools, had evolved with us. The Northern Broadband Network (NBN), an $11.6 million initiative under the Canada–Saskatchewan Western Economic Partnership Agreement (Government of Saskatchewan, 2005), increased accessibility and network speeds across the northern communities in Saskatchewan. This development enabled us to move many of the CD-ROM, DVD, and VHS materials onto the new institutional video-streaming server, ShareStream, allowing us to embed videos in course pages. The streaming service automatically detects connection speeds of its users and optimizes the delivery of content. In addition, students remain behind a login-protected page to allow us to take advantage of the fair dealing exemptions in Canadian copyright law.

Web 2.0 technologies and 3.0 strategies for curating content and syndication have developed, in many cases, beyond the scope of institutional privacy policies and technical security infrastructure. Concerns around student privacy, third-party software support, site hacking and trolls, and intellectual property rights are among the issues that stunt the use of open and innovative content and social engagement tools available on the open web. A final report from the Privacy and Cloud-Based Educational Technology Conference in 2011, issued by BCcampus, looks at the impact of postsecondary institutional digital privacy policies, including the Freedom of Information and Protection of Privacy Act (FIPPA), and states that the general sense coming out of the conference was that "the FIPPA legislation, and in many cases institutional policies surrounding digital privacy issues, have not caught up to this paradigm shift" (BCcampus, 2011, p. 1).

As institutions, industry, and governments begin to address out-of-date policies and paradigm paralysis, we have been able to slowly bridge the technology gap between online course design and the current standards of web design and user experience on the social web.

Copyright

Issues

At the beginning of our five-year journey involving copyright, the university was under contract to a clearing house for copyright with publishers and authors on a per page fee. In our unit, each item requiring clearance was recorded in a separate Word document and submitted for clearance. Individual course copyright records were retained, but there was no standardized process or central database in place. Although this was a time-consuming and tedious process, once a clearance application was submitted, the clearing house took care of contacting authors and publishers for permissions.

When the university ended its contract with the clearing house, it now fell to the department to take care of all aspects of copyright clearance, including tracking down individual authors and publishers to obtain permissions. This was the first major hurdle that needed to be addressed. Extra staff were hired to help with the volume of clearances, further adding to copyright costs. In many cases, material central to course objectives had to be removed from courses due to lack of proper clearance. Often clearances were not received in time and courses were patched together with replacement content from the open web.

While we were working on solving our first challenge, another copyright issue arose. We experienced a two-year wait for the new Canadian copyright legislation to be passed and for the accompanying university policy to be developed. In both years, the decisions were announced in late June, and we and our staff worked overtime during the summers in order to have our course materials cleared for fall delivery.

Solutions

Once again, we looked at these challenges as opportunities and began sourcing current open resources to replace the restricted-use materials. This process allowed us to build our knowledge of the open educational resource world.

We continued to clear copyright through individual authors and publishers or by sourcing open educational resource replacements for those we could not get permission for. The copyright assistant and copyright coordinator became experts in locating authors, especially for courses that had been developed several years earlier. In many cases original course authors had left the university, the province, or even the country.

We developed an Excel copyright spreadsheet to handle the many copyright items in each course, and the spreadsheet is updated each time a course is delivered. Items are recorded by module with complete bibliographic information and columns for permissions. Permission is obtained for each copyrighted item and recorded on the spreadsheet, and the permission statements are recorded in the course materials. This master copyright document for each course serves as a record of the types of clearances each item holds. The spreadsheet also serves as a maintenance tool for building class syllabi and course pages online. The bibliographic information can be copied and pasted into the class schedule of the syllabus for quick reference, and the copyright statements can be copied and pasted into the course pages under images or tables; both are used to create cover pages for the article readings.

The university is currently implementing a database for tracking all copyright items and permissions. As well, instructors are required to sign off for each delivery, thus indicating that their courses are copyright compliant. The university is also conducting random copyright audits for which the copyright spreadsheets provide evidence of compliance.

Additional staff have been hired to complete this complex copyright work. For the first two years, we as instructional designers worked primarily on copyright work. Then, contractors were hired at key times until a full-time copyright assistant was hired. Finally, a copyright coordinator was moved into the work unit to be a full-time support for DOC courses.

The costs of copyright clearances for the courses have been drastically reduced with the Copyright Modernization Act, Bill C-11 (2012). Today, every effort is made to find open source resources. Also, many items are available under the university library licences or under fair dealing guidelines as set out by the university in accordance with the copyright legislation.

Although the copyright legislation and the university's guidelines are now established, the interpretation of the legislation continues to result in changes to how we process and state the permissions for the copyright items. We are continually updating our practices to meet new requirements that result from legal interpretations in specific copyright situations.

Keeping over a thousand courses copyright compliant for three terms of the year requires the efforts of two full-time copyright staff, as well as contributions from instructional designers and others on the instructional-design team. To date, we have successfully passed the internal copyright audits by providing the Excel copyright spreadsheets as evidence. Although we focus on distance-delivered courses, whenever there is an equivalent face-to-face course on campus, we provide the copyright spreadsheet to that instructor, thereby also adding value from DOC to the on-campus delivery. This spring, the copyright assistant and copyright coordinator started entering copyright information for each course from the spreadsheet into the central university database.

The Future

Ground Level

After struggling with fragmented and out-of-date design models, removing incompatible technology, aligning objectives and assessments, and grappling with copyright policy, we feel as though we are finally standing on the horizon of something new. We often refer to a popular comment from *The Simpsons* when the characters find themselves at the bottom of a deep pit they have dug. Their strategy for getting out of the pit is to continue digging. It is Chief Wiggum who corrects his fellow diggers by saying, "No, no, dig up, stupid" (Groening et al., 1994). Thus, even though at times it seemed counterproductive to continue digging, we dug . . . up. Three pillars were key to digging our way out: curriculum alignment, delivery details, and maintenance data.

Curriculum Alignment

The first pillar focused on building strong foundations for each course. Due to the scale of the project, it became necessary to systematize many of these processes. The modular template ensured a minimum standard of curriculum alignment (Morrison et al., 2013) and a navigable

model to follow. This template served as a useful way to inventory and isolate the pieces of curriculum from the communication elements of delivery, assessment, and administration. Once the minimum pedagogical requirements were met, we were able to experiment with trends in teaching strategies and innovative technologies without disrupting the curriculum or the objectives linked to it. This foundational layer of core pedagogical requirements allows for flexibility in the delivery. Changing how the course is taught and how the objectives are met can easily evolve along with available technology and trending models of continuing and distance education.

Delivery Details

The second pillar concentrated on delivery details. Keeping delivery and content separate is an important piece of the foundational puzzle. In addition to providing students with an overview of the course, a schedule of activities, and important university policy information, the class syllabus template ensures that details around delivery and assessments are clearly communicated (Thompson, 2007). Updated each term, the syllabus template allows instructors the flexibility to change how they deliver content and how they assess the outcomes. Although this layer of the foundation can be impacted by changes to the curriculum layer, the curriculum layer should not be impacted by changes to the syllabus.

Maintenance Data

The third pillar of smooth delivery recognized that copyright clearance records should not impact the curriculum. Establishing a system and a team around copyright clearances provides another layer of foundational strength. Maintaining the proper clearances for materials in a course helps to ensure that we are not only avoiding infringement but also making accurate data available for creating other elements in the course, such as reading lists and course schedules. These copyright records and the processes around their use also provide information for instructors to easily update their content, readings, and assessment activities with more current or relevant material, while maintaining legal obligations. They also serve as a checklist each term to ensure that the online or print-based materials match both the syllabus and course guides. Again, this piece of the foundation informs changes to the curriculum but should not directly impact it. The alignment of objectives, curriculum, and assessments should always drive the changes.

Keep Digging Up

Standing now on level ground we are excited to find new ways to "dig up." Adult continuing and distance education is at a major turning point as online technologies become ubiquitous. As society moves steadily away from industrial-age systemic approaches and towards networked approaches, we are observing a major shift in paradigms (Richardson, 2010). Sir Peter Blake once said, "New technology is common, new thinking is rare" (Ed Tech Quotes, n.d.). Embracing new technologies and methodologies needs to go beyond the substitution of current tools and methods, where the substituted technology has no functional advantage. Instead, we need to shift our thinking to how the technology can redefine tasks and provide previously inconceivable opportunities and strategies for teaching and learning (Puentedura, 2014).

Moving beyond system-based content management is one of the initiatives we've recently begun to explore. As challenged by Groom (2014), we asked ourselves if our institution's supported learning technologies enable students and faculty to innovate through their online teaching and learning activities. In many cases, user experience of the open and social web has created web-design and user experience expectations that exceed the capabilities of most LMS's. With the Internet, users create content and publish it on the most relevant space. Internet users employ bookmarking for articles and websites on a variety of topics and organize them to suit their personal learning needs. They curate content and make web posts to synthesize and articulate new understandings of things. They network with like-minded individuals and nurture their learning communities with "friends" and "likes" while discovering new communities of practice and inquiry. Digital literacy is no longer an optional skill in the workplace or social stratosphere. Buckingham (2006) argues that "the increasing convergence of contemporary media means that we need to be addressing the skills and competencies—the multiple literacies—that are required by the whole range of contemporary forms of communication" (p. 275).

How is the LMS serving this skill development? How does it foster exploration in students when they remain walled inside a course for the duration of the term (Groom, 2014)? Integration of literacy skill development into the courses we design is essential. To do this we need to stop thinking of an online course as taking place in a "digital classroom" and expand the perimeter of learning to all four corners of the World Wide Web. The institutions of higher learning are no longer the keepers of knowledge. The Internet is large, expansive, messy, personal, and powerful, with a web of learning networks that connect ideas, students, and teachers with content, industry, scholarly activities, and research. Learning in the environment we live in only makes sense, and today we live online. As Theodor Nelson (2003), a pioneer of information technology, once noted, "we live in media as fish live in water" (p. 306).

Empowering students and faculty to create and manage their own personal learning networks and environments is now a focus. How we design courses and interactions around this concept is an evolving process of pilots and experimentations. Through curating content, social bookmarking, hashtags, and syndication techniques, we can sift, sort, and synthesize the networked knowledge of the Internet to create focused modules of curriculum. These modules not only support learners in achieving the objectives of the course, but also provide opportunities to develop digital literacy skills and to nurture lasting learning communities and personal learning environments, which students can manage and maintain throughout their postsecondary experience and beyond. Designing opportunities for these self-sufficient and literate learners to build personal learning environments that work for their individual needs, empowered by their networked learning communities, is the vision we have of not only a modern model of adult and continuing education but also of learning in general.

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Biographies

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Jordan Epp est concepteur pédagogique au Centre for Continuing & Distance Education (centre de formation continue et à distance) de l'Université de la Saskatchewan. Parmi ses travaux de recherche, on trouve la culture numérique et la citoyenneté, la culture remix et les milieux d'apprentissage sociaux. Issu du milieu de la production médiatique, des communications et de la technologie pédagogique, il croit fermement aux technologies perturbatrices et au langage du média comme outil d'enseignement et d'apprentissage.

Jeanette McKee is an instructional designer in the Centre for Continuing & Distance Education at the University of Saskatchewan. Jeanette is a career educator, experienced in designing, developing, and teaching secondary and postsecondary education.

Jeanette McKee est aussi conceptrice pédagogique au Centre for Continuing & Distance Education (centre de formation continue et à distance) de l'Université de la Saskatchewan. Expérimentée en conception, en création et en enseignement de cours de niveaux secondaire et postsecondaire, elle est aussi éducatrice en orientation.